

Abstract

# Pristimerin is a Promising Natural Product against Breast Cancer *in vitro* and *in vivo* through Apoptosis and the Blockage of Autophagic Flux <sup>†</sup>

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**Abstract:** The exploration of natural products is of importance because the management of cancer is still not satisfactory. Pristimerin is a naturally occurring triterpenoid that has been shown to suppress the proliferation of various cancer cell lines at relatively lower concentrations, of which the IC<sub>50</sub> values are around 0.5–4 μM. Its cytotoxic potential on particularly cancer stem cells (CSCs) should be much more important due to the CSCs' recent role in recurrence of cancer. Although pristimerin exerted growth inhibitory activity in various cancer cells, the mechanisms is still debatable. Its antigrowth effect seems to involve the blockage of autophagic process as well. In our studies, pristimerin showed an anti-growth effect on cancer cells and cancer stem cells with IC<sub>50</sub> values ranging at 0.38–1.75 μM. Apoptosis was induced in MCF-7 and MCF-7s (CSCs) cells. It also resulted in an incompleated autophagy as evidenced by the increase of autophagy-related proteins (P62 and LC3-II) as well as an unfolded protein response (UPR). Moreover, it inhibited the growth of xenografts in NOD/SCID mice. Taken together, pristimerin deserves further attention in terms of its use for the treatment of breast cancer. In this talk, quite an unusual cytotoxic potential of pristimerin will be discussed.

**Keywords:** pristimerin; autophagic flux; NOD/SCID mice

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